

1 **ABSTRACT**

2 The following description provides direction-based topology control to a  
3 distributed wireless multi-hop network. The network includes multiple potentially  
4 mobile nodes. Each node sends a discovery message in all directions. Each node  
5 discovers a set of neighboring nodes using a set of incoming signals from the  
6 neighboring nodes that are responsive to the discovery message. Responsive to  
7 receiving the incoming messages, each node makes a local decision about a  
8 substantially optimal transmission power with which to communicate with at least  
9 a portion of the discovered neighboring nodes. The decisions are based on the  
10 incoming signals and are also independent of positional information (e.g., latitude  
11 and longitude). Each node in the network maintains communications with the  
12 decided portion of nodes to provide connectivity between each of the nodes.  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25